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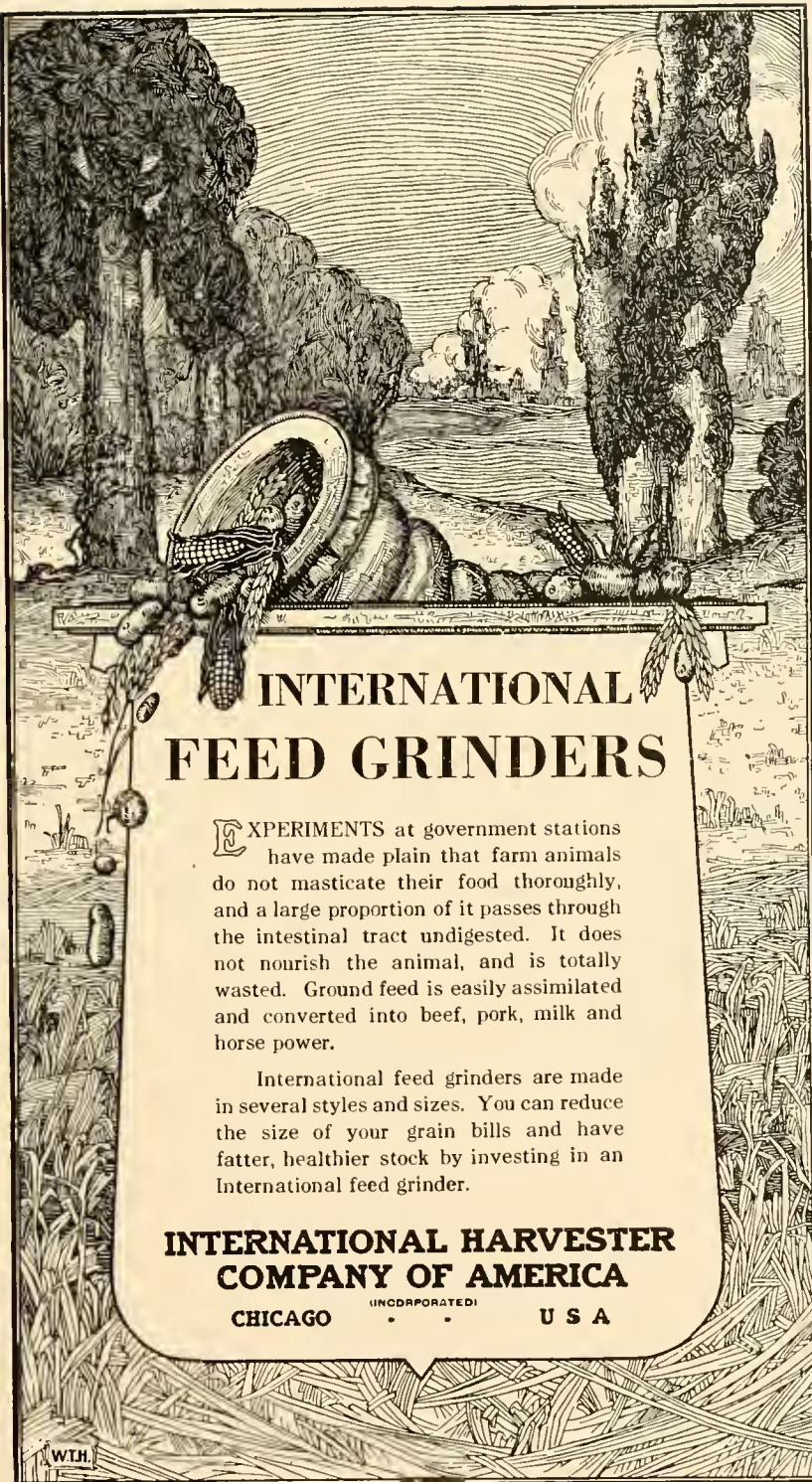
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OF AMERICA



INTERNATIONAL FEED GRINDERS





INTERNATIONAL FEED GRINDERS

EXPERIMENTS at government stations have made plain that farm animals do not masticate their food thoroughly, and a large proportion of it passes through the intestinal tract undigested. It does not nourish the animal, and is totally wasted. Ground feed is easily assimilated and converted into beef, pork, milk and horse power.

International feed grinders are made in several styles and sizes. You can reduce the size of your grain bills and have fatter, healthier stock by investing in an International feed grinder.

**INTERNATIONAL HARVESTER
COMPANY OF AMERICA**

CHICAGO

(INCORPORATED)

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INTERNATIONAL FEED GRINDERS

Three Types of International Feed Grinders

International feed grinders are built in three types, each type in different sizes, so they may meet all requirements.

Type B is designed primarily for grinding corn on the cob; it is built in three sizes, with 6, 8 and 10-inch grinding plates.

Type C grinds small grain only—wheat, barley, oats, shelled corn, etc.; it is an efficient, high-speed mill for rapid grinding of small grain. It is built in two sizes, with 6 and 8-inch grinding plates.

Type D is designed primarily for grinding corn in the husk. It is built with a spiral cutter and 8 and 10-inch grinding plates.

Approximate Capacity* and Horse Power of International Feed Grinders

			Bushels per Hour	Horse Power
TYPE B	6" Plate	Ear Corn	5-10	2- 6
		Shelled Corn and Small Grains	5-20	2- 8
	8" Plate	Ear Corn	8-15	3- 8
		Shelled Corn and Small Grains	8-30	3-10
	10" Plate	Ear Corn	15-30	6-20
		Shelled Corn and Small Grains	15-50	6-20
TYPE C	6" Plate	Shelled Corn and Small Grains	5-20	2- 8
	8" Plate	Shelled Corn and Small Grains	8-30	3-10
TYPE D	8" Plate	Corn in Husk	12-25	4-10
	10" Plate	Corn in Husk	15-30	6-15

*It is next to impossible to make any definite statement regarding the capacity of a feed grinder. Four continually varying factors enter into the computation of the capacity of any feed grinder. The approximate capacities of International feed grinders range from 5 to 50 bushels per hour, depending entirely on the condition of the grain, the fineness to which it is ground, the power used, and the speed at which the machine is run.

To secure the greatest capacity, these machines should be driven at a maximum speed. Minimum speed for 8 and 10-inch grinders is 300 revolutions per minute. Maximum speed when a flywheel is used is 600 revolutions per minute. At a speed above 600 revolutions per minute the flywheel should be removed.

The following table indicates the speed of International feed grinders equipped with different size pulleys and operated with an International oil engine from 2 to 20-horse power.

ENGINE			INTERNATIONAL FEED GRINDER						
			SPEED OF GRINDERS WITH VARIOUS PULLEYS—R. P. M.						
			Diameter 8 Inches	Diameter 10 Inches	Diameter 12 Inches	Diameter 14 Inches	Diameter 16 Inches	Diameter 18 Inches	Diameter 20 Inches
Horse Power	Diameter of Regular Plain Pulley	Speed R. P. M.							
2	8-inch	400	400	320	266	228	200	177	160
3	9-inch	360	405	324	270	231	202	180	162
4	12-inch	400	600	480	400	342	300	266	240
6	16-inch	325	650	520	433	371	325	290	260
8	18-inch	310	697	558	465	398	348	310	279
10	20-inch	300	750	600	500	428	375	333	300
12	24-inch	300	900	720	600	514	450	400	360
15	26-inch	250	812	650	541	464	406	361	325
20	28-inch	240	840	672	560	480	420	373	336

INTERNATIONAL FEED GRINDERS

International Type B Feed Grinder

6-Inch Grinding Plates

This grinder is specially designed for grinding corn on the cob. When the supplementary bottom, described on page 8, is used, small grain can be ground. The grinding plates are 6 inches in diameter. Fine and medium plates are regularly furnished, but when specially ordered, coarse and extra fine plates can be furnished at an additional cost. This grinder can be operated with from 2 to 5-horse power, at a speed of 125 revolutions per minute for each horse power. The best results will be obtained when the speed is not less than 300 revolutions per minute. At this speed, under favorable conditions, the capacity is about ten bushels per hour. At a slight additional cost a heavy flywheel will be furnished with this grinder. The flywheel should be removed for any speed over 600 revolutions per minute.



International Type B Feed Grinder, 6-Inch

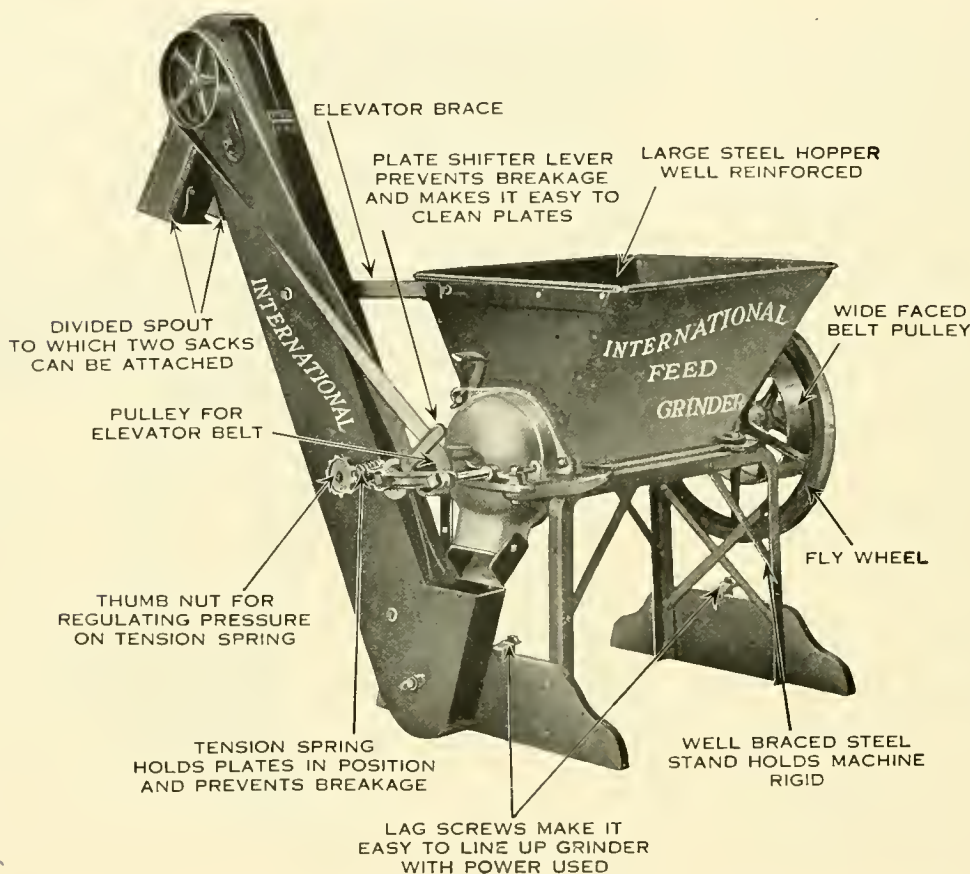
Specifications of the Type B 6-Inch Feed Grinder

Power	- - - - -	2 to 8-horse power.
Speed	- - - - -	125 revolutions per minute per horse power.
Hopper Opening	- - - - -	Top, 17 x 20"; bottom, 6 x 12½".
Floor Space	- - - - -	34 x 40".
Main Shaft	- - - - -	1 5/8".
Pulleys	- - - - -	12" pulley with 4½" face is regularly furnished; 6, 8, 10, 14 or 16" pulleys can be furnished if specified.
Equipment	- - - - -	12" pulley, fine and medium grinding plates, lag screws, regular cob breaker.

INTERNATIONAL FEED GRINDERS

International Type B Feed Grinder

8-Inch Grinding Plates



Sacking Elevator Attached to a Type B, 8 or 10-Inch Feed Grinder

Specifications of the Type B, 8-Inch Feed Grinder

Power	- - - - -	3 to 10-horse power.
Speed	- - - - -	75 revolutions per minute per horse power.
Hopper Opening	- - - - -	Top, 20 x 25"; bottom, 7 x 14".
Floor Space	- - - - -	34 x 43".
Main Shaft	- - - - -	1 $\frac{7}{16}$ ".
Pulleys	- - - - -	12" pulley with 5 $\frac{1}{4}$ " face is regularly furnished; 6, 8, 10, 14, 16, 18 or 20" pulley can be furnished if specified.
Equipment	- - - - -	12" pulley, fine or medium grinding plates, lag screws, regular cob breaker.

INTERNATIONAL FEED GRINDERS

International Type B Feed Grinder

10-Inch Grinding Plates

This grinder differs from the 6 and 8-inch grinders in that the frame and hopper are longer and the main shaft is larger in diameter. It is designed to grind corn on the cob. Where a large size grinder is required, as with feed-store men, stockmen and dairymen, this is a popular machine. The grinding plate, supplementary bottom, and flywheel equipment is the same for this grinder as for the 6 and 8-inch grinders. The grinding plates are 10 inches in diameter. The supplementary bottom and flywheel will be furnished when specially ordered at an additional cost. This grinder can be operated with from 8 to 15-horse power at a speed of 35 to 40 revolutions per minute



International Type B Feed Grinder, 10-Inch

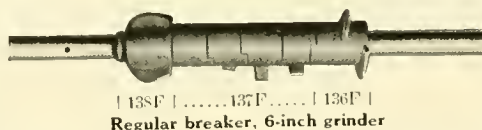
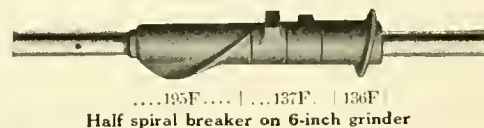
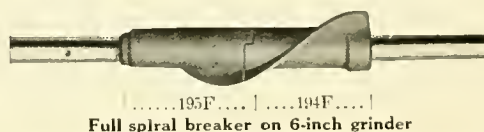
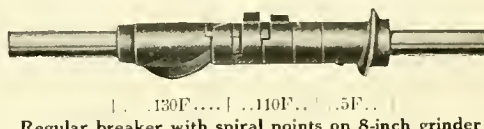
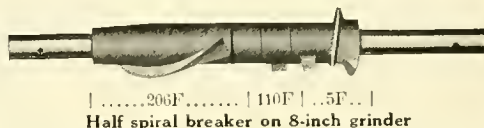
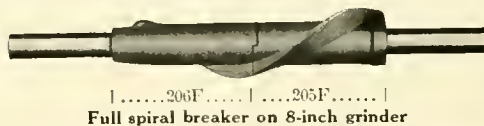
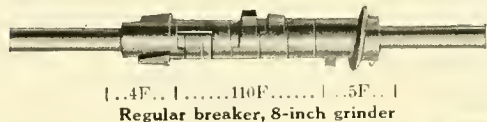
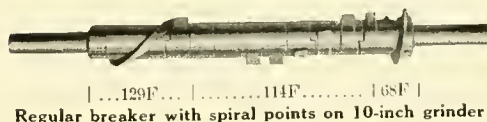
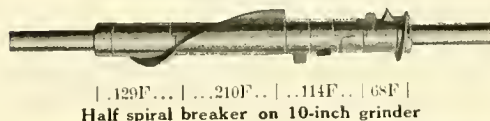
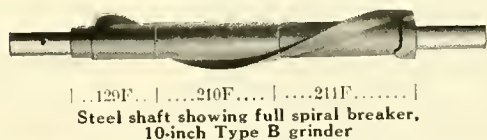
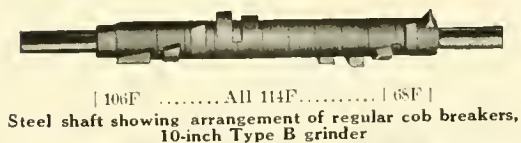
for each horse power. The best results will be obtained at a speed of from 350 to 500 revolutions per minute. For a speed over 600 revolutions per minute, the flywheel should be removed.

Specifications for Type B, 10-Inch Feed Grinder

Power	- - - - -	6 to 20 horse power.
Speed	- - - - -	35 to 40 revolutions per minute per horse power.
Hopper Opening	- - - - -	Top, 25 x 29"; bottom, 7 x 22".
Floor Space	- - - - -	34 x 52".
Main Shaft	- - - - -	1 ⁹ / ₁₆ ".
Pulleys	- - - - -	12" pulley with 6 ¹ / ₄ " face is regularly furnished; 8, 10, 14, 16, 18 or 20" pulley can be furnished if specified.
Equipment	- - - - -	12" pulley, fine and medium grinding plates, lag screws, regular cob breaker.

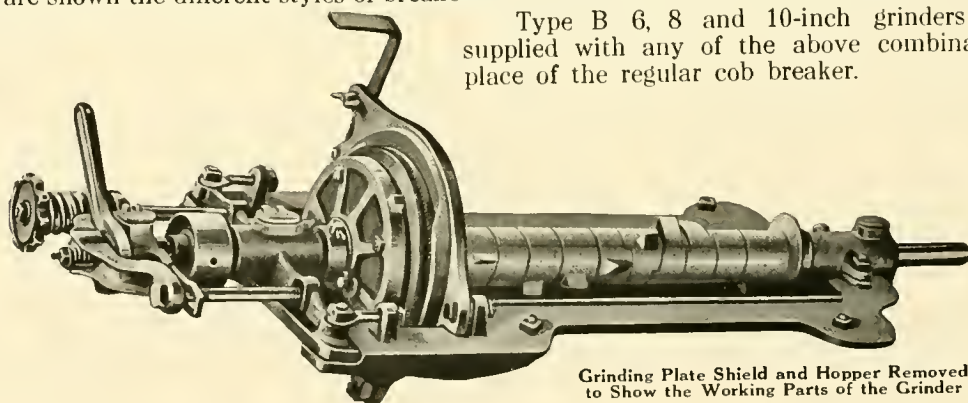
INTERNATIONAL FEED GRINDERS

Description of Type B Grinders



The breakers on Type B feed grinders mash up the cobs and force the grain toward the grinding plates. They are located on the steel shaft, and to insure lasting qualities their points are chilled. Above are shown the different styles of breakers for the three sizes of Type B grinders.

Type B 6, 8 and 10-inch grinders can be supplied with any of the above combinations in place of the regular cob breaker.



INTERNATIONAL FEED GRINDERS

Plate Shifter Lever

A lever conveniently located at the end of the shaft makes it possible to separate the plates without readjusting the tension spring. This is a safe-guard against breakage, because if a stone or a nut should get into the mill, by one quick movement of the lever, damage can be avoided. Also, the plates may be cleaned without making the tension-spring adjustment, which is slow and difficult to get to the same fineness as before.

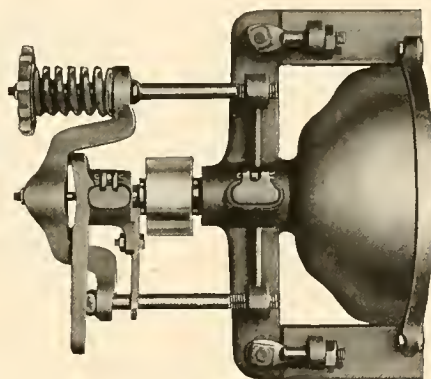
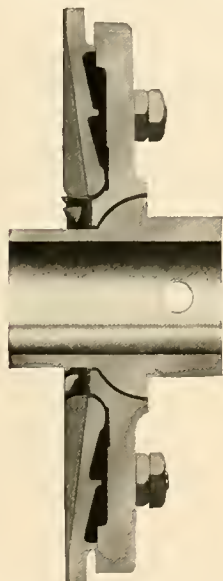


Plate Shifter Lever and Tension Spring

Spring Tension

A heavy spring holds the grinding plates in position, and minimizes the danger of breakage, should any hard substance get into the grain by mistake. The pressure exerted by this spring can be made greater or less by turning the thumb nut which holds the spring in place. In this way the grinder may be regulated for fine or coarse grinding.



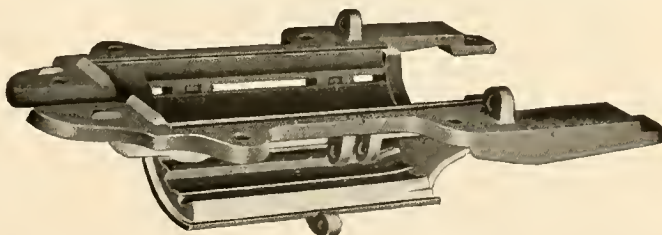
Cross Section Showing Self-Aligning Running Plate with Ball and Socket Connection

Self-Aligning Grinding Plates

A heavy steel shaft, which runs in extra long, anti-friction babbitt bearings, drives the crushing and grinding parts of the machine. The stationary grinding plate is bolted to the frame of the mill; the running plate is attached to the shaft by means of a ball and socket connection shown in the illustration on this page. This connection permits the running plate to keep in perfect alignment with the plate on the frame at all times; the result is a mill that runs smoothly and grinds evenly.

The end thrust of the shaft is taken up by a ball bearing. This construction reduces the friction produced by the end pressure to a minimum.

The Chilled Concave



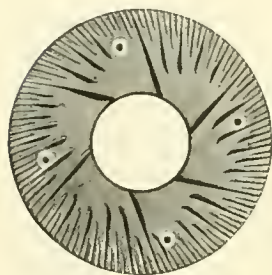
Chilled Concave Under Grinding Plates

The chilled concave is located below the breakers, and is fastened to both sides of the frame with wooden pins on 8 and 10-inch grinders. On 6-inch grinders metal pins are used, because where small horse power is employed the driving belt will slip off the pulley as soon as the plates become clogged.

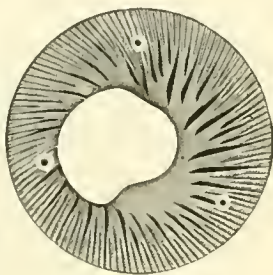
Large Steel Hopper

The hopper is made of sheet steel, the surface of which is perfectly smooth. To prevent its being battered or bent out of shape it is strongly reinforced around the top by turning the outer rim completely around an iron rod.

INTERNATIONAL FEED GRINDERS



Running Plate



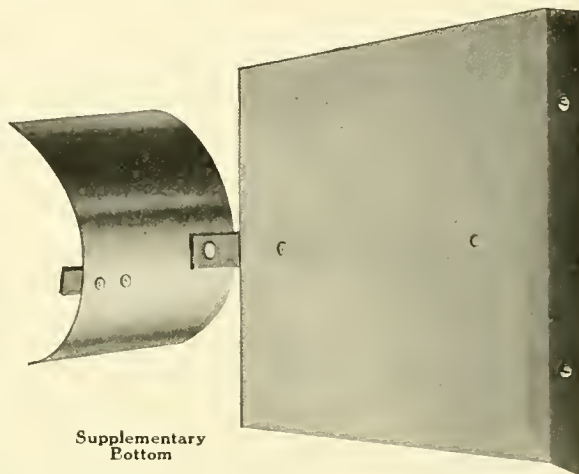
Stationary Plate

Grinding Plates

International Type B feed grinders are regularly equipped with one pair of fine grinding plates and one pair of medium grinding plates. Coarse and extra fine plates can be supplied at an additional cost. These plates are made of steel and are not interchangeable, as is seen in the illustration on this page, because the stationary plate and the running plate are of different design.

Shut-Off

A shut-off regulates the flow of grain into the plates, and is controlled by a small lever just above these plates. When closed, the shut-off prevents the entrance of any grain to the plates. This feature makes it possible to regulate the flow of grain to the amount of power used.

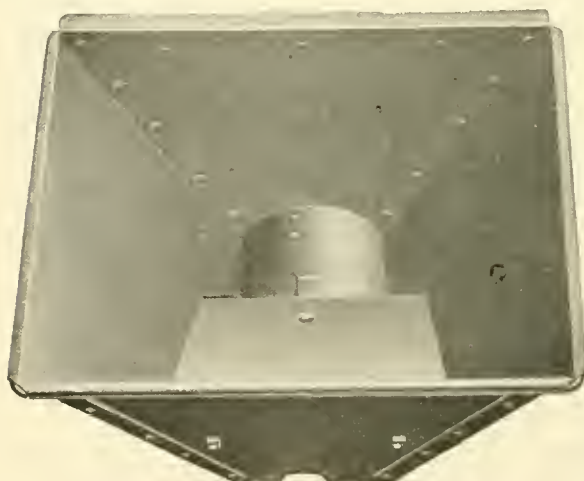


Supplementary Bottom

Supplementary Bottom

Small grain may be ground in all Type B feed grinders when the supplementary bottom attachment is used. This attachment is made of sheet steel and is perfectly smooth so it will not obstruct the grain.

It is put into the hopper with the convexed surface fitting up close to the opening which leads to the grinding plates, forming a tube through which small grain will be forced. The flat surface is inclined toward the grinding plates and is fastened to the hopper by two bolts at the upper end of the incline. This attachment is made in three sizes to fit 6, 8 or 10-inch grinders.

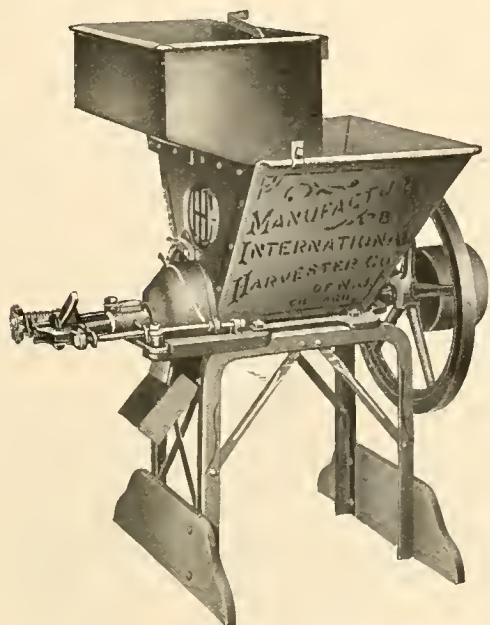


Supplementary Bottom in Place in Hopper

Steel Frame and Lag Screws

A strong, rigid steel frame and two lag screws make it easy to keep the mill in proper relation to the power used to drive it. The lag screws fasten into the floor and clamp over the top of the wooden braces. The clamps may be loosened by turning a nut on the top of the lag screw. The mill may be moved, in order to tighten or loosen the belt, without moving the lag screws, by simply loosening the clamps, sliding the mill in the desired direction and then tightening them up again.

INTERNATIONAL FEED GRINDERS



Type B Feed Grinder with Supplementary Hopper for Grinding Small Grain

Supplementary Hopper

The best results are often obtained by feeding a mixture of different grains. The most satisfactory way to mix grains so that the mixture is thorough and even is by grinding them together. Small grain and ear corn will not mix thoroughly or grind evenly when placed in the same hopper. For this reason a supplementary hopper is made for 6, 8 and 10-inch Type B feed grinders for grinding oats or other small grain, together with ear corn. This device consists of a separate sheet steel hopper that sits above and in front of the regular hopper and is clamped to the regular hopper. It is well made, the separate pieces being riveted together, and the top reinforced by turning the outer rim around an iron rod. The bottom slopes toward a feed opening equipped with a shut-off. The small grain is put into the supplementary

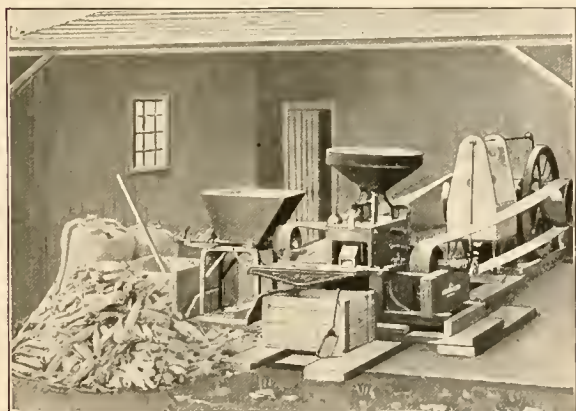


Supplementary Hopper

hopper and the ear corn into the regular hopper. The flow of small grain may be controlled by the shut-off lever. This attachment is furnished only on special order at an additional cost.

Advantages of Grinding Feed with an I H C Feed Grinder

Grinding grain adds a great deal to its value as a feed for all kinds of stock. When whole grain is fed, a large part of it is wasted, because it is not thoroughly masticated or digested. At the prevailing high market prices of corn and other grains, no one can afford to waste any, however small the amount may be. When ground grain is fed it will be found that as much as 35 per cent can be saved. For animals out of condition or old animals, ground grain is essential if the best results would be attained. It has been thoroughly demonstrated in one of the leading experiment stations of the country that one pound of corn and cob meal has the same feeding value as one pound of corn meal. This proves conclusively that it pays to grind corn on the cob.



A Money-Making Grinding Outfit

INTERNATIONAL FEED GRINDERS

International Type C Small Grain Grinders

6 and 8-Inch Grinding Plates

These grinders are specially designed to grind small grain, such as wheat, oats, barley and shelled corn. The bottoms of the hoppers with which they are equipped are inclined toward the grinding plates and chute the grain into a worm, which in turn forces it to the grinding plates. The grinding plates are 6 and 8 inches in diameter for the respective grinders. The 6-inch grinder is equipped with fine and medium grinding plates; the 8-inch grinder is also equipped with fine, and medium grinding plates. The 6-inch grinder may be operated with from 2 to 6-horse power, at a speed of 125 revolutions per minute for each horse power. The capacity of this grinder is from 5 to 20 bushels per hour. The 8-inch grinder may be operated with from 6 to 12-horse power, at a speed of 175 revolutions per minute for each horse power. The capacity of this grinder is from 8 to 35 bushels per hour.



International Type C Small Grain Grinder, 6 and 8-Inch

Specifications for Type C, 6-Inch Feed Grinder

Power	2 to 8-horse power.
Speed	125 revolutions per minute per horse power.
Hopper Opening	Top, 17 x 20".
Floor Space	34 x 40".
Main Shaft	1 ⁵ / ₁₆ ".
Pulleys	6" pulley with 4 ¹ / ₄ " face is regularly furnished; 8, 10 or 12" pulley can be furnished if specified.
Equipment	6" pulley, fine and medium grinding plates and lag screws.

INTERNATIONAL FEED GRINDERS

Specifications for Type C, 8-Inch Feed Grinder

Power	- - - - -	3 to 10-horse power.
Speed	- - - - -	100 revolutions per minute per horse power.
Hopper Opening	- - - - -	Top, 19 x 25".
Floor Space	- - - - -	34 x 43".
Main Shaft	- - - - -	1 $\frac{7}{16}$ ".
Pulleys	- - - - -	6" pulley with 5 $\frac{1}{4}$ " face is regularly furnished; 5, 8, 10, 12, 14, 16, 18 or 20" pulley can be furnished if specified.
Equipment	- - - - -	6" pulley, fine and medium grinding plates and lag screws.

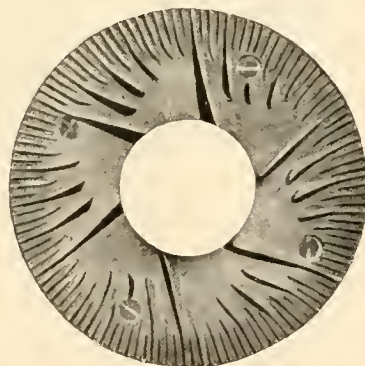
Description of Type C Feed Grinders



Fine Stationary Plate

Grinding Plates

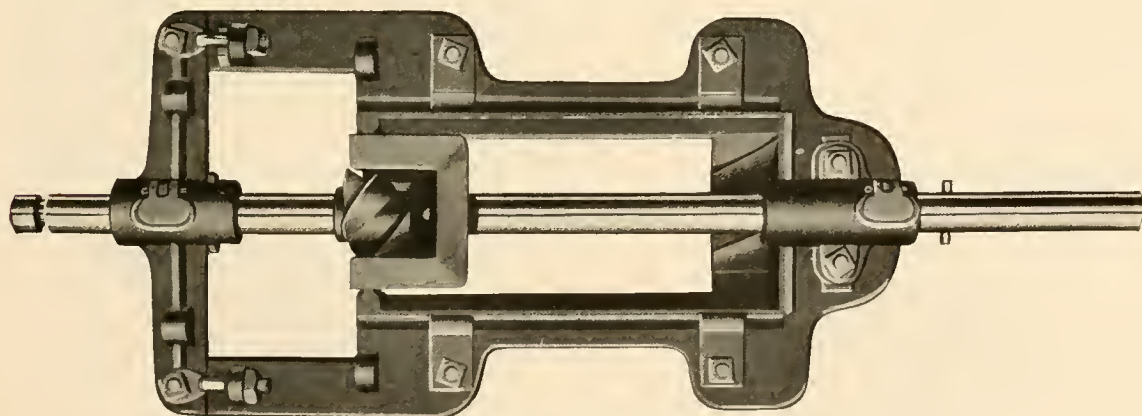
All running or stationary grinding plates on the Type C feed grinders are alike. All Type C grinders are regularly furnished with fine and medium grinding plates.



Fine Running Plate

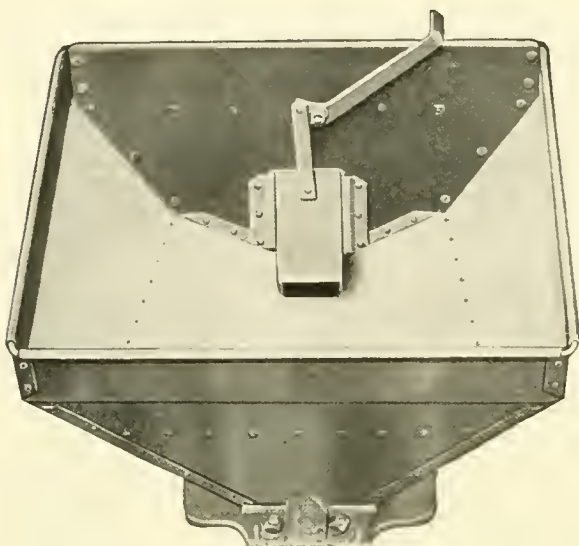
Worm Feed

Type C feed grinders are made with a worm feed just below the shut-off. This worm feed forces the grain into the grinding plates. This feature is responsible for the steady flow of grain to the grinding plates, which is so necessary to insure even grinding.



Hopper and Grinding Plates Removed to Show Construction of Shaft, Steel Frame and Worm Feed

INTERNATIONAL FEED GRINDERS



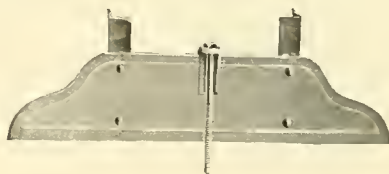
View Showing the Inside of Hopper with the Adjustable Shut-Off Open

Hopper and Shut-Off

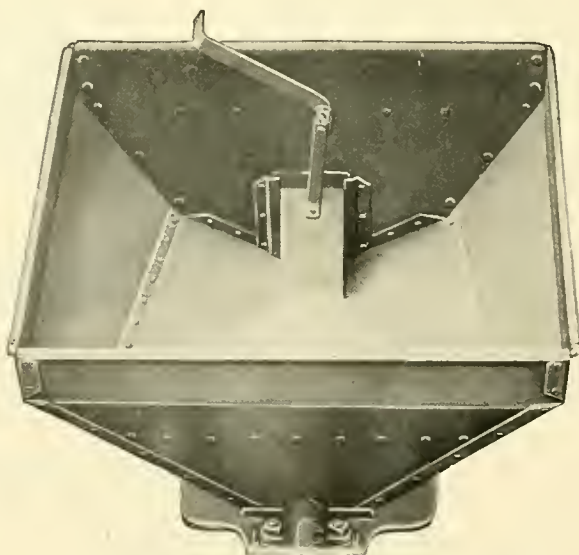
The hopper is made of sheet steel and is thoroughly reinforced around the top; the outer rim is turned completely around an iron rod. It cannot become bent or knocked out of shape. The inside of the hopper is perfectly smooth with no projections to obstruct the flow of grain. The bottom inclines toward the opening just above the worm feed. One excellent point in the construction of this mill is the shut-off shown in the two illustrations on this page. By means of it the flow of grain fed to the grinding plates may be shut down or regulated so that an 8-inch grinder may be operated with an engine as low as 4-horse power. The 6-inch grinder may be regulated to run on as low as 2-horse power. When the shut-off is closed, no grain can get into the grinding plates.

Steel Frame and Lag Screws

A strong, rigid steel frame and two lag screws keep the machines from wobbling, and hold them firmly in position on the floor. The lag screws fasten into the floor and clamp over the tops of the wooden braces. The clamps may be loosened without loosening the lag screws, and permit a movement of eight inches, making it easy to line up the grinder with the power used to drive it.



Lag Screw and Clamp



View Showing the Inside of Hopper with the Adjustable Shut-Off Closed

INTERNATIONAL FEED GRINDERS

International Type D Feed Grinder

8 and 10-Inch Grinding Plates, Spiral Cutter



International Type D Feed Grinder, 8 and 10-Inch

This grinder is primarily designed for grinding corn in the husk.

The capacities of Type D grinders vary widely with the amount of power used, the condition of the grain, and the fineness to which the grain is ground.

The 8-inch grinder can be operated with from 6 to 10-horse power, at a speed of 100 revolutions per minute for each horse power. The 10-inch grinder can be operated with from 8 to 15-horse power at a speed of 75 revolutions per minute for each horse power. All Type D feed grinders are equipped with fine and coarse grinding plates.

Specifications of the Type D 8-Inch Feed Grinder

Power	- - - - -	4 to 10-horse power.
Speed	- - - - -	100 revolutions per minute per horse power.
Hopper Opening	- - - - -	Top, 17 x 19"; bottom, 6 ³ / ₄ x 13 ¹ / ₂ ".
Floor Space	- - - - -	21 x 48".
Main Shaft	- - - - -	1 ⁷ / ₈ ".
Pulleys	- - - - -	10" pulley with 5 ¹ / ₄ " face is regularly furnished; 6, 8 or 12" pulley can be furnished if specified.
Equipment	- - - - -	10" pulley, fine and coarse grinding plates, lag screws.

Specifications of the Type D 10-Inch Feed Grinder

Power	- - - - -	6 to 15-horse power.
Speed	- - - - -	75 revolutions per minute per horse power.
Hopper Opening	- - - - -	Top, 17 x 19"; bottom, 6 ³ / ₄ x 13 ¹ / ₂ ".
Floor Space	- - - - -	21 x 48".
Main Shaft	- - - - -	1 ⁹ / ₈ ".
Pulleys	- - - - -	14" pulley with 6 ¹ / ₄ " face is regularly furnished; 8, 10 or 12" pulley can be furnished if specified.
Equipment	- - - - -	14" pulley, fine and coarse grinding plates, lag screws.

INTERNATIONAL FEED GRINDERS

Gears

The cut below shows the arrangement of the gears on the Type D feed grinder. The nature of the work done by this machine requires a slow, powerful cutting and grinding mechanism. By nesting three gears and three pinions in the proper manner, the power required to cut the husks and break the cobs is reduced to a minimum. The inside gear which drives the shaft revolves but once to every seven revolutions of the pulley; this increases the efficiency of the cutters about $33\frac{1}{3}$ per cent, and permits them, on a slow-running shaft, to cut up the corn with less engine power than would be possible on a fast one.

The machine is so geared that one cutter knife revolves faster than the other, and consequently it is impossible for a big ear of corn to wedge and stop the machine.

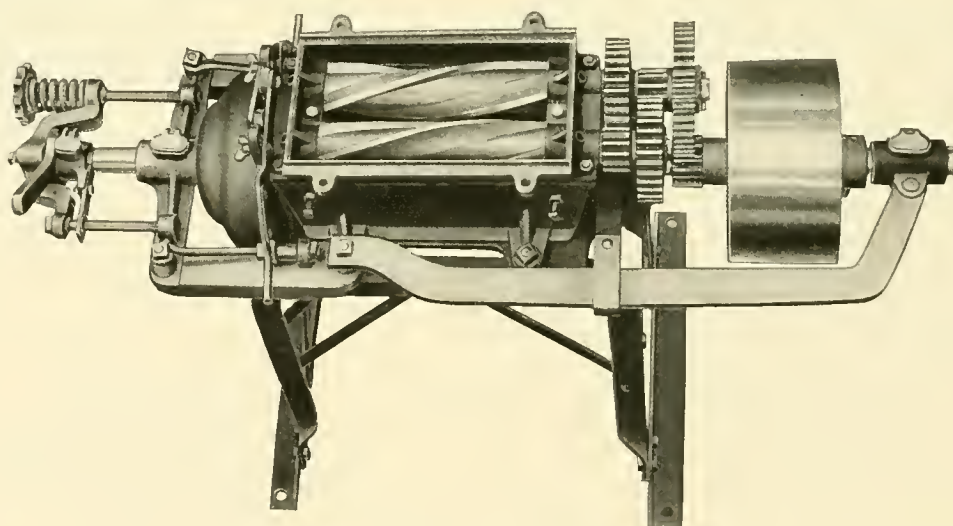
The gearing is completely covered to prevent injury to the operator, or cutting of the gears through the entrance of dust and grit.

Strong Stand Construction

The machine is constructed with a steel stand which stays where it is put and holds the grinder firm and rigid. The angle irons lag to the floor and are firmly cross-braced at both ends of the machine so there is no way for the belt to get out of line or the machine to become shaky.

Outer Shaft Support

The shaft on the Type D grinder runs out several inches beyond the pulley into a long, anti-friction bearing. The shaft is prevented from bending or springing, and friction is reduced by an outer shaft support shown in the illustration below. Because of this support, none of the working parts of this machine can be thrown out of alignment.



Type D Grinder with Hopper and Gear Shield Removed. Note the Spiral Cutter, Arrangement of Gears and Outer Shaft Support

INTERNATIONAL FEED GRINDERS

Cutter Bar

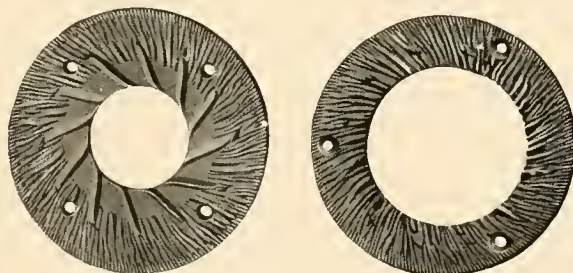
A noteworthy feature of this machine is the cutter bar. This is a rectangular bar running parallel to the cutter knives and located just below and midway between the two. As the knives revolve they come in contact with the edges of the bar; and in this way form a cutting surface. The bar can be adjusted by set screws, either up or down, or in either direction sideways. The value of this arrangement is readily seen. Suppose that a knife, after the machine had been in use some time, became dull, was removed and ground. When replaced, it might not be in proper relation to the cutter bar. To get the correct cutting surface, the bar has only to be adjusted sideways, up or down, as the need may require. If the corners become worn, a new cutting surface is supplied by simply turning the bar over.

Safety Device

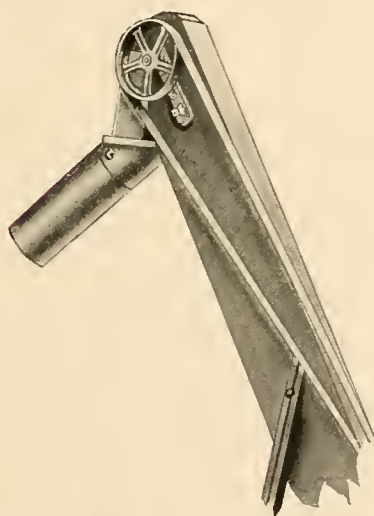
To prevent the knives from breaking, a wooden break pin is used to fasten the first pinion to the drive shaft. Before any damage can be done by obstructions getting into the cutter, this pin will give way.

Complete Shut-Off

The feed opening is around the end of the worm. A double slide shut-off regulates the amount of material fed into the grinding plates. When closed, it prevents the admission of any grain to the plates. It can be adjusted to the amount of power used.



Pair of Fine Grinding Plates



Wagon Box Elevator with Swivel Spout

Extra Equipment

Wagon Elevator

The elevator illustrated on this page is of great value where it is desirable to have the ground feed placed in a wagon or bin, as it delivers the feed direct without handling. This elevator can also be used as a sacker, when the sacking attachment is substituted for the wagon spout. The wagon spout works in a swivel and can be adjusted to deliver ground feed in any direction. These two attachments are interchangeable, and either can be supplied with this elevator. The wagon spout is regularly shipped with the elevator. The sacking attachment is supplied at an additional cost and only when ordered.

INTERNATIONAL FEED GRINDERS

Extra Equipment—Continued Flywheel

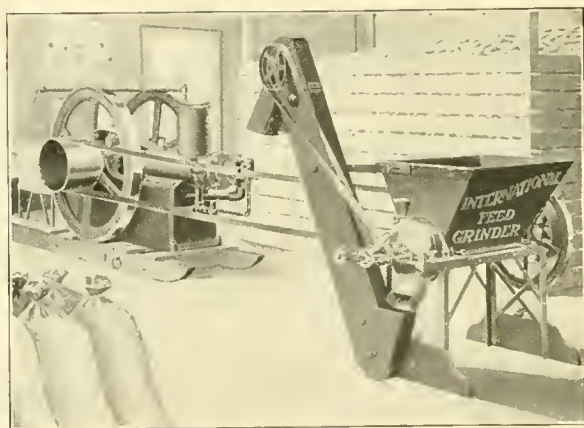
A large, heavy flywheel is furnished with all size Type B feed grinders at an additional cost. When the grinders are driven at a speed above 300 revolutions per minute, the flywheel should be removed.

Sacking Elevator

When it is desired to sack ground feed, it is convenient to have a sacking elevator in connection with the grinder. An efficient and well-made elevator can be had with an I H C feed grinder at an additional cost. This elevator can be attached to either side of the machine in a moment. When attached as shown in the illustration on page 4, the belt should be crossed; when attached to the other side of the machine the belt should be straight.

The Most Adaptable Power

Oil and gas engines furnish by far the most adaptable and economical power for the modern farm. These engines can be operated on gas, gasoline, benzine, naphtha, kerosene, solar oil, or alcohol. The power they generate is practical, not only for work in the field, but also for the smaller jobs around the house, workshop and barn. They furnish the most convenient power for operating the feed grinder, and are especially adaptable for this purpose on account of the variation in the power required in proportion to the kind and condition of the grain being ground. No matter how much power a feed grinder needs to do its work properly, there is an I H C oil or gas engine that will supply it at such a low cost that grinding with an International feed grinder



operated by one of these engines is most profitable.

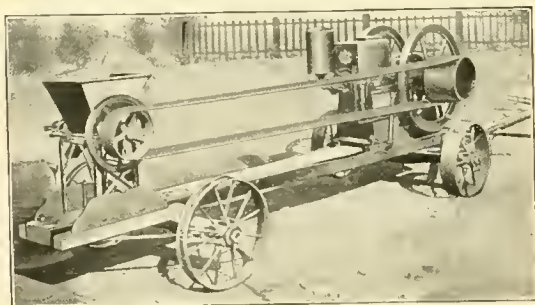
I H C engines are very easy to operate, and when once started require no attention except for an occasional oiling.

The I H C Line Includes

I H C vertical engines, made in 2, 3, 4, 6, 25 and 35-horse power. Horizontal (portable and stationary) engines, made in 1, 1 $\frac{3}{4}$, 2 $\frac{1}{2}$, 4, 6, 8, 10, 12, 15, 20, 25 and 50-horse power.

Pumping, spraying and sawing outfits; I H C oil tractors from 12 to 60-horse power.

The illustration on this page shows an I H C feed grinder being operated by the engine of an I H C motor hay press. The power bed and bale chamber of the press have been disconnected. The extra axle and wheels have been attached to the rear end of the power bed and the feed grinder has been set up on the power bed just as it would be set up on a barn floor. This engine may be used for operating many other machines, such as corn shellers, wood saws, concrete mixers, etc.



A Feed Grinder can be Operated with the Engine of the International Motor Press

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